Fallbrook Public Utility District
2005 Urban Water Management Plan

Prepared by:

Fallbrook Public Utility District staff

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Section 1 – Introduction

1.1 Agency Coordination

The mission of the Fallbrook Public Utility District (FPUD) is to provide a safe and reliable supply of water to residents and customers in the Fallbrook area. This is the 2005 Urban Water Management Plan for FPUD. This report is an update to the District's 2000 Urban Water Management Plan, and it includes a description of the District's projected water resources necessary to provide water to its service area through the year 2030.

Because the District is a water retailer, which purchases 100% of its potable water from supplies imported by the San Diego County Water Authority (Authority) and the Metropolitan Water District of Southern California, this 2005 Plan addresses issues that relate to the consumer. Our two wholesalers have, in their 2005 Plans, addressed regional issues concerning San Diego County and Southern California water supplies.

A draft of this plan was presented to the Board of Directors at its regular monthly meeting on December 12, 2005, at which time the board held a public hearing on the Plan. The Plan was made available for public review prior to final acceptance. The Board of Directors approved this plan on December 12, 2005 and hereby submits it to the California Department of Water Resources.

The District is one of 23 member agencies of the San Diego County Water Authority (Water Authority). The Authority is, in turn, a member agency of the Metropolitan Water District of Southern California (Metropolitan). Since virtually all the potable water supplied by FPUD is supplied by the two large water wholesalers, this district looks to and actively participates in the decisions and policies adopted by our water wholesalers to provide a safe and reliable supply of water. FPUD has one representative that sits on the Water Authority's governing board.

California Urban Water Management Planning Act

The California Water Code requires all urban water suppliers within the state to prepare Urban Water Management Plans and update them every five years. These plans satisfy the requirements of the Urban Water Management Planning Act (Act) of 1983, including amendments that have been made to the Act. Sections 10610 through 10656 of the Water Code detail the information that must be included in these plans, as well as who must file them.

This Plan is prepared to satisfy the requirements of the Act, however the 2005 Plans prepared by the Water Authority and Metropolitan address many of the projections for resource reliability for the entire Southern California region, including Fallbrook.

Prior water conservation plans, urban and agricultural water management plans have been developed and adopted by FPUD's Board of Directors in 1981, 1985, 1991, 1995 and 2000.

PUBLIC PARTICIPATION LAW 10642

Each urban water supplier shall encourage the active involvement of diverse social, cultural and economic elements of the population within the service area prior to and during the preparation of the Plan. Prior to adopting a plan, the urban water supplier shall make the plan available for public inspection and hold a public hearing thereon. Prior to the hearing, notice of the time and place of the hearing shall be published... after the hearing the Plan shall be adopted as prepared or as modified after the hearing.

PUBLIC PARTICIPATION

FPUD has encouraged community participation in its urban water management planning efforts through its Board of Directors. The Board, which is made up of elected community representatives, has been actively involved since the first plan was developed in 1985. Additionally, public monthly meetings are held on the fourth Monday of each month at 4 p.m., giving the community an opportunity to provide input and participation in the urban water management planning effort.

Notices of public meetings are posted outside the District office, the local fire station and the library. Copies of the Plan are available at the District office.

PLAN ADOPTION

District staff prepared this update during the third and fourth quarters of 2005. The updated plan was adopted by the Board of Directors in December 2005 and submitted to the California Department of Water Resources within 30 days of the Board's approval. This plan includes all information necessary to meet the requirements.

COORDINATION WITH APPROPRIATE AGENCIES – §10620 (d) (2)

Each urban water supplier shall coordinate the preparation of its Plan with other appropriate agencies in the areas, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.

COORDINATION WITHIN THE DISTRICT

District staff members met and coordinated the development of this Plan. Those members included Noelle Denke, Community Relations Representative; Jeff Marchand, Engineering Technician; Keith Lewinger, General Manager; and Joe Jackson, Chief Engineer.

As a member agency of the Water Authority, District staff and board members coordinate planning efforts through participation with the Water Authority's staff and board, and other member agencies.

COORDINATION WITH APPROPRIATE AGENCIES (TABLE 1)

	Participated in UWMP development	Commented on the draft	Attended public meetings	Contacted for assistance	Received copy of draft	Sent notice of intention to adopt
Other water suppliers, including Camp Pendleton	√					√
Water management agency: SDCWA	√	√		√	√	√
County of San Diego	√			√	√	√

For detailed information on reliability and how FPUD's demands will be met, please refer to the 2005 Urban Water Management Plan submitted by the Water Authority. In the event of declared water shortages, the District's Water Conservation Ordinance will be implemented. A copy is included in Appendix A.

District staff also attended several regional planning workshops in preparation for this report. The workshops provided opportunity to coordinate plans with other agencies.

DESCRIBE RESOURCE MAXIMIZATION / IMPORT MINIMIZATION PLAN §10620 (f)

Tools the District is using to maximize resources and minimize the need to import water include two projects: the Santa Margarita Conjunctive-use Project and a cooperative agreement with Metropolitan Water District to store rainfall in its Lake Skinner in Temecula.

The Lake Skinner agreement solves a decades-old water-rights problem for the District. FPUD had rights to collect water in the Santa Margarita River, but no place to store it. Lake Skinner had the storage space, but no rights to the local water. The deal enables FPUD to store river water in Lake Skinner, then the water is piped to Fallbrook, increasing FPUD's overall supply. Metropolitan benefits by collecting a $177 per acre-foot wheeling charge. FPUD expects to collect an average of 1,000 acre-feet of "new" water per year from the river.

The other project, the Santa Margarita Conjunctive-use Project, involves a plan with Camp Pendleton as a partner in developing the Santa Margarita River as a local source of water. If the project is developed, the river could meet about 40% of the District's future needs and 100% of Camp Pendleton's needs. The water would be stored in an underground water basin on Camp Pendleton. The project,

with a start-of-construction date targeted for fiscal year 2007 to 2008, would provide a reliable water supply, enabling the District to become more self-sustaining, with its own water sources, rather than relying solely on imported water.

Section 2 – Appropriate level of planning for size of agency

2.1 Appropriate level of planning for size of agency

The level of detail provided in this Plan reflects the size and complexity of this water provider.

2.2 Service area information with 20-year projections

The population projections listed in the table below were provided by San Diego Association of Governments (SANDAG), San Diego's regional planning agency. The comparison of data indicates an increase of approximately 5% every five years.

Population – Current and projected (Table 2)

	2005	2010	2015	2020	2025	2030
Service area population	30,788	33,368	34,096	35,945	37,584	40,295

Climate conditions

The climatic conditions within FPUD's service area are characteristically mild Mediterranean with an average year-round temperature of 64 degrees. The average high temperature in Fallbrook is 76 degrees with the warmest summer temperature rarely higher than 90 degrees. Average winter nighttime temperature is 42 degrees and mostly frost-free.

Climate (Table 3)

	Jan	Feb	Mar	Apr	May	June
Standard Monthly Average ETo	2.74	2.71	3.79	4.79	5.48	6.19
Average Rainfall (inches)	3.36	3.78	2094	1.2	0.27	0.14
Average Temperature (Fahrenheit)	55.91	56.84	58.74	62.49	65.71	70.16

Climate (continued)

	July	Aug	Sept	Oct	Nov	Dec	Annual
Standard Monthly Average ETo	6.79	6.75	5.29	4.18	3.41	2.87	54.99
Average Rainfall (inches)	0.07	0.03	0.22	0.67	1.31	1.75	15.75
Average Temperature (Fahrenheit)	74.65	76.03	73.95	67.68	60.01	55.31	64.75

Other demographic factors affecting water management

Historically, water usage has remained the same in FPUD's service area because the larger agricultural areas have been converted over the years to smaller residential areas. Those smaller but more numerous properties have used the same amount of water as the larger agricultural properties they replaced.

Today, houses being built are being built in open space, and water usage is increasing somewhat, but there is a very limited amount of open space remaining

in Fallbrook with the potential of being developed. In essence, Fallbrook is very nearly completely developed.

LAND USE

Fallbrook is an unincorporated community of San Diego County. As such, area land use is subject to regulation by the County Board of Supervisors. This is accomplished through the use of the County General Plan -1990. As part of the General Plan, community plans were developed for each of the major unincorporated communities in the County. Each plan is designed to meet the specific needs of a community. The Fallbrook Community Plan (FCP) was adopted on Dec. 31, 1974 by the Board of Supervisors and revised in September 1985. The FCP did not project land use for intermediate future years but rather produced an ultimate land-use plan. While the Community Plan specifies land use, it does not constitute zoning. All future zoning is legally required to be consistent with the adopted community goals and objectives presented in the FCP.

The following general goal has been adopted in the FCP: "Perpetuate the existing rural charm and village atmosphere while accommodating growth in such a manner that it will complement and not sacrifice the environment of our rustic, agriculturally oriented community."

The FCP attempts to fulfill this goal by limiting future multiple-use and high-density development to the designated town center and is referred to in the County General Plan as a "Country Town." Land outside the designated town center, extending to the community's boundaries, is intended for agricultural uses and rural, residential development and has parcel size limits of 1, 2, 4 or 8 acres, depending on topography and steepness of the land. Most population increase is occurring within the Country Town as land is developed into subdivisions and apartment units. Outside the Country Town land subdivision has been occurring gradually as 40- and 80-acre parcels are split up over many years down to the permissible minimum size of 2 or 4 acres. Agricultural land use has been undergoing a gradual change from primarily avocados and citrus to a mixture of crops including other subtropical fruit and nut orchards such as macadamias, fuyu persimmons, kiwis, cherimoyas, etc. In addition, ornamental flowers and commercial nurseries are increasing in prominence and will tend to preserve the agricultural orientation of the community. Growth rates are expected to remain close to the historic long-term trend.

Conversion of land uses from purely agricultural use to rural residential is a function of agricultural economics, high water costs and increasing land values.

History and description of the District's service area

The first permanent recorded settlement in Fallbrook was in 1869, in the east area of the District, which later became Live Oak County Park. Agriculture has always been a major industry in the area. The first plantings were olives and

citrus, which were replaced in the 1920s by avocados. Fallbrook is generally recognized as the "Avocado Capital of the World."

FPUD, consisting of about 500 acres, was incorporated on June 5, 1922. In 1927, the Fallbrook Irrigation District voted to dissolve and a portion of the former Irrigation District became part of FPUD, increasing the size of the District to 5,000 acres. Subsequently, a plan to develop water from the Bonsall basin of the San Luis Rey River was started and by 1946 three 1,000 gallon-per-minute wells were in operation. The District also obtained additional water from rights on the Santa Margarita River. Wells were added over the years until 1953 when, due to the generally over-drafted condition of the San Luis Rey River, the District was restricted from extracting water after April 1, 1954, when the average static water level in the Basin was greater than 18 feet below the surface of the ground.

The District became a member of the San Diego County Water Authority (Water Authority) at its formation on June 9, 1944, and thus was eligible to receive a portion of the Colorado River water diverted by the Metropolitan Water District (Metropolitan) of Southern California. When Colorado River water became available in 1948, consumption within the District gradually increased to approximately 10,000 acre-feet per year by 1959. In 1978, Metropolitan augmented its supply system with water from the California State Water Project and began delivering both waters to San Diego County.

Use of Santa Margarita River water continued until 1969 when floods destroyed the District's diversion works. These facilities were not replaced because in 1968 a Memorandum of Understanding & Agreement was signed with the Federal Government to develop a two-dam and reservoir project on the river for the benefit of this District and the U.S. Marine Corps Base Camp Pendleton. This agreement was the culmination of 17 years of water rights litigation in the *U.S. vs. Fallbrook* case and the federally sponsored project was known as the Santa Margarita Project. Further discussion of this project is in the Water Sources section of this plan, beginning on page 8.

Significant expansions of the District service area took place in 1950 when it annexed the last remaining portion of the Fallbrook Irrigation District and in 1958 when the area to the north of the town on both sides of the Santa Margarita River annexed to the District. In May 1990, the registered voters of the DeLuz Heights Municipal Water District, whose service area joins Fallbrook to the northwest, decided to dissolve their 17-year-old district and annex into FPUD's. This annexation added 11,789 acres (42% increase) to Fallbrook's service area; it increased water use by 25% and the number of service connections to four. The DeLuz Heights Municipal Water District was a member agency of the Water Authority and Metropolitan, and relied on the same source of imported water except for three small wells, which had produced approximately 100 AF per year.

Currently, the District serves an area of 28,000 acres. Forty-five percent of the annual water deliveries are for agricultural use. The remainder is for municipal, residential and industrial uses. Annual growth in population and service connections over the past 25 years has been around 5%, while overall water consumption has remained relatively constant.

2.3 WATER SOURCES

WATER CODE SECTION §10631

Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier.

This District relies on imported water supplied by the Water Authority, which in turn relies on Metropolitan for its water supply. Since virtually 100% of FPUD's potable water is supplied by the aforementioned two agencies, their water supply plans and forecasts relate to this District. We look to and participate in their planning for our future needs. For more information on their water supply plans for FPUD, it may be helpful to reference the 2005 Urban Water Management Plans for Water Authority and Metropolitan.

CURRENT AND PLANNED WATER SUPPLIES – ACRE-FEET/YEAR (TABLE 4)

Water supply sources	2005	2010	2015	2020	2025	2030
San Diego County Water Authority	17,400	16,149	15,773	15,625	15,189	15,241
Groundwater supplier: Santa Margarita River	0	6,000	6,000	6,000	6,000	6,000
Groundwater supplier: local wells in Fallbrook	130	100	100	100	100	100
Surface diversions: rainfall into Lake Skinner	1,260	1,000	1,000	1,000	1,000	1,000
Recycled water	317	480	530	590	600	600
Total	19,107	23,729	23,403	23,315	22,889	22,941

WATER SOURCES – GROUNDWATER

WATERSHED MANAGEMENT PLAN

A potential source of water is the Santa Margarita River. Fallbrook used to produce some of its water from the Santa Margarita River under a 2 ½ cfs direct diversion license from the state of California. Those facilities were destroyed by floods in 1969 and have not been rebuilt. Subsequently the state cancelled the license for lack of use.

For more than 50 years the District has been attempting to develop a permanent local water supply on the Santa Margarita River by constructing a dam and reservoir to capture flood flows and provide a storage facility for these flows. In

1948, water permits were obtained from the state for diversion and storage of 30,000 acre-feet. The federal government filed suit against the District in 1951 over water rights on the river to quiet its title to the adjudicated rights accruing to Camp Pendleton. Those water rights had been adjudicated in the Ranch Santa Margarita vs. Vail Co. litigation, which was settled in 1940.

The U.S. Congress authorized construction of the Santa Margarita Project in 1954 which was to be a single dam and 175,000 AF reservoir located on Camp Pendleton for the benefit of the Marine Corps Base (60%) and FPUD (40%). The U.S. Justice Department did not concur with this legislative solution and pursued the lawsuit. The following excerpt from the Bureau of Reclamation's Feasibility Report on the Santa Margarita Project identifies the end of the litigation and the solution to development of Santa Margarita River water.

"After many years of litigation concerning water rights on the Santa Margarita River, extending over a period of time from 1923 to 1966, the U.S. District Court for the Southern District of California entered its Modified Final Judgment and Decree on April 6, 1966. However, the many years of litigation had not produced a division of water between the Fallbrook Public Utility District and Camp Pendleton that would enable either to build and operate a separate project. The court retained continuing jurisdiction over water rights on the river, and invited the two principal parties to seek physical solutions that would alleviate further controversies."

A Memorandum of Understanding and Agreement (MOU) was signed by the Secretary of the Navy, Secretary of the Interior, U.S. Attorney General and FPUD on March 4, 1968, in which all parties agreed to an equitable division of the water predicated upon construction of a joint project involving dams and reservoirs at both the Fallbrook and DeLuz sites, if found to be feasible.

The MOU was subsequently approved by the U.S. District Court on June 27, 1968, and incorporated in its Modified Final Judgment and Decree. Except for the joint project stipulated in the agreement, to be constructed, owned, and operated by the United States as a single project, there is no other presently known physical solution that would alleviate further legal controversies.

The U.S. Bureau of Reclamation published a revised Planning Report & Supplemental Environmental Report on the two-dam plan in 1984. It failed to achieve Congressional approval and the House Armed Services Committee directed the Secretary of the Navy in 1985 to conduct a new study (independent of the Bureau of Reclamation) of the water supply and flood-control needs of Camp Pendleton. Meanwhile, the Bureau evaluated a smaller project consisting of one 50,000 AF reservoir at the Fallbrook site to include 15,000 AF of additional flood control capacity and downstream levees for flood control. The Bureau stopped work on this project in 1986 due to a lack of staff and funds. Believing in this project, FPUD evaluated non-federal financing of this alternative and completed a wildlife and biological mitigation plan for the project in 1989. Successful completion of this project would have required a land exchange between the U.S. Bureau of Land Management and private property owners in the San Luis Rey River. The U.S. Fish & Wildlife Service concurred on the plan's

impacts to the endangered least Bell's vireo, and required a 404 permit from the U.S. Army Corps of Engineers.

Meanwhile, the Marine Corps completed their water supply study in 1988 and concluded their water supply requirements would be best served by obtaining a connection to the MWD system and not proceeding with additional local development on the Santa Margarita River.

About the time the Marine Corps finished their latest study, two public water supply and wastewater treatment agencies upstream from Fallbrook, Rancho California Water District (Rancho), and the Eastern Municipal Water District (Eastern), were investigating disposal alternatives for their treated wastewater. Basin plans completed in the early 1970s called for construction of an ocean outfall for these inland dischargers when their effluent volume exceeded the ability to locally dispose of their effluent by land application on sod farms, a golf course, and spreading for groundwater recharge. Water quality issues severely limited their options for increased direct re-use in the upper basin of the Santa Margarita watershed.

As the lead agency, Eastern conducted a study of alternative means of disposal and concluded their most economical option was to provide tertiary treatment to full Title 22 standards and obtain a permit for "Live Stream Discharge" down the Santa Margarita River. Camp Pendleton objected to this proposal on the basis of potential degradation to their groundwater supplies, and Fallbrook objected that such a plan that would prohibit development of its long-hoped-for on-stream reservoir. The four agencies agreed to work together to see if a basin-wide plan could be developed that would achieve the individual objectives of each of the parties. After almost two years of negotiation and completion of a $280,000 Water Quality Protection Study, 4-party and 2-party agreements were reached that provided for guaranteed increase of year-round flows down the river, a potential 100% increase in the yield of Camp Pendleton's groundwater basins, conjunctive use by Fallbrook and Pendleton of these basins, and water quality control facilities at Pendleton that will ensure TDS levels of production water 650 mg/L or better.

Fallbrook could eventually realize a reliable annual local water supply from this project of 6,000 AF per year, or about one-third of its anticipated demand. Whether this full supply will be realized was dependent on growth in the upper basin in Temecula and sewage flows into Eastern and Rancho's plants.

In 1992, the Regional Water Quality Control Board issued discharge permits to Eastern and Rancho that would have started implementation of these agreements. Unfortunately, the EPA interceded and took over jurisdiction of the discharge permits halting the process. EPA disagreed with the nutrient limits established by the Regional Board. Since EPA's ruling, Rancho and Eastern

have developed disposal methods, which do not include discharge to the Santa Margarita River.

Currently, the conjunctive-use project is moving forward without Rancho's or Eastern's wastewater flows. Federal funding grants in the amount of $700,000 for the feasibility studies have been provided to the Bureau of Reclamation. Engineering, economic and environmental feasibility studies for the project are underway and are targeted for completion in summer 2006.

GROUNDWATER PUMPING RIGHTS – AF/Y (TABLE 5)

Basin name	Pumping right – AF/Y
Lower Santa Margarita	0*
Local wells in Fallbrook	130

*FPUD has the right to divert and store surface water in the Santa Margarita River, so the District is working to amend its permit to include groundwater storage. The current permit allows for 10,000 AF/Y of surface water from the river.

Since this is a future project, the district does not have any historical data it can report or provide on groundwater pumped on the Santa Margarita River project.

AMOUNT OF GROUNDWATER PROJECTED TO BE PUMPED – AF/Y (TABLE 6)

Basin name	2010	2015	2020	2025	2030
Lower Santa Margarita	6,000	6,000	6,000	6,000	6,000
Local wells in Fallbrook	100	100	100	100	100
% of Total Water Supply	40%	40%	40%	40%	40%

2.4 RELIABILITY OF SUPPLY

WATER CODE SECTION §10631

(c) Describe the reliability of the water supply and vulnerability to seasonal or climatic shortages, to the extent practicable, and provide data for each of the following:

(1) An average water year.

(2) A single dry water year.

(3) Multiple dry water years.

For any water source that may not be available at a consistent level of use, given specific legal, environmental, water quality or climatic factors, describe plans to supplement or replace that source with alternative sources or water demand management measures, to the extent practicable.

FPUD is one of 23 member agencies of the Water Authority. Member agency status entitles the District to directly purchase water from the Water Authority on a wholesale basis. FPUD relies on Water Authority to provide adequate amounts of water to meet current and future needs. As a member agency, FPUD is an active participant in long-term planning decisions made by the Water Authority

board. FPUD as a member agency also helps finance water storage facilities to meet future and emergency needs.

As stated in the California Urban Water Management act, every urban water supplier shall include, as part of its plan, an assessment of the reliability of its water supply. For detailed information on how the demands of FPUD will be met, please refer to the 2005 Plan submitted by the Water Authority. In the event of a declared water shortage, please refer to the District's Water Conservation Ordinance, Article 25, included at the end of this report in Appendix A. More information can be also obtained in the Water Authority's 2005 Urban Water Management Plan.

The Act requires that for any water source that may not be available at a consistent level of use, given specific legal, environmental, water quality, or climatic factors that the agency describe plans to replace that source with alternative sources or water demand-management measures. FPUD, as well as Water Authority, recognizes the uncertainties regarding imported water supplies from Metropolitan. Water Authority is taking steps to reduce dependence on this imported supply by diversifying its sources through implementation of water transfers, demand management, providing stronger incentives to member agencies for using recycled water, and development of local projects.

If the Santa Margarita River project does not come to fruition, FPUD will continue to rely on the Water Authority for virtually 100% of its water supply.

2.5 TRANSFER AND EXCHANGE OPPORTUNITIES

WATER CODE SECTION §10631
(d) Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.

For the purpose of emergency supply in the event of leaks or maintenance, FPUD entered into an emergency exchange agreement with Rainbow Municipal Water District in 1986. Both agencies own and operate water pipeline systems connected to the Water Authority aqueduct and along a common boundary. Interconnections were constructed linking both agencies' systems for this emergency exchange purpose.

Rancho California Water District is the only other adjacent water agency, but no opportunity for transfers or emergency connections exist.

As a member agency of wholesale water supplier Water Authority, the District actively participates in Water Authority's ongoing water transfer discussions. The Water Authority entered into a transfer agreement with the Imperial Irrigation District, which will provide up to 200,000 AF by 2030. Water Authority has also identified seawater desalination as a potential supply and is moving forward with

development of a 50-million gallon per day seawater desalination facility. More information on these projects and Water Authority's potential water transfers can be found in the Water Authority's 2005 Urban Water Management Plan.

2.6 WATER USE BY CUSTOMER-TYPE – PAST, CURRENT & FUTURE

PAST, CURRENT & PROJECTED WATER DELIVERIES (TABLE 7)

Year	Water use sectors	Single Family*	Multi-family*	Commer-cial**	Instit/ Gov	Agricul-ture***	Total
2000 metered	# of accounts	7,022	206	470	30	198	7,926
	Deliveries AF/Y	6,019.3	939.9	1236.1	211.2	7,628	16,034.5
2005 metered	# of accounts	7,687	220	487	31	188	8,613
	Deliveries AF/Y	6014.7	847.1	1170	182.1	6572	14,785.9
2010 metered	# of accounts	7,962	221	512	32	141	8,868
	Deliveries AF/Y	8127.42	1098.3	1537.62	219.66	5,646	16,629
2015 metered	# of accounts	8,383	226	529	33	123	9,294
	Deliveries AF/Y	8404.18	1135.7	1589.98	227.14	4946	16,303
2020 metered	# of accounts	8,811	241	553	34	109	9,748
	Deliveries AF/Y	8771.96	1185.4	1659.56	237.08	4361	16,215
2025 metered	# of accounts	9,842	262	600	35	73	10,812
	Deliveries AF/Y	9503.08	1284.2	1797.88	256.84	2947	15,789
2030 metered	# of accounts	10,169	265	624	36	61	11,155
	Deliveries AF/Y	9903.34	1339.1	1874.74	267.82	2450	15,841

*Assumed 6 Multi-family units per account
**Assumed 3 AF/Commercial Account
***Assumed 40 AF/Ag Account

Figures for the number of accounts for the last quarter of 2005 were estimated since this report was compiled before the last business day of the year. Data for deliveries forecasted from 2010-2030 was derived from the Water Authority Preliminary Member Agency 2030 Demand Forecast. Data for accounts forecasted was derived from the SANDAG Forecast for FPUD Residential Housing.

Since FPUD does not sell any water to other agencies, there are no figures to report for this category.

ADDITIONAL WATER USES AND LOSSES – AF/Y (TABLE 8)

Water Use	2000	2005	2010	2015	2020	2025	2030
Recycled	0	0	0	0	0	0	0
Unaccounted-for system losses	100	100	831	815	811	789	792

Unaccounted-for water loss within FPUD's potable water system averages 5%. That figure was used to project estimated system losses for the years from 2010-2030.

TOTAL WATER USE – AF/Y (TABLE 9)

Water Use	2000	2005	2010	2015	2020	2025	2030
Sum of tables 7 & 8	16,134.5	14,785.9	17,460	17,118	17,026	16,578	16,633

2.7 DEMAND MANAGEMENT MEASURES

Attached in Appendix C are the California Urban Water Conservation Council reports documenting the District's Best Management Practices (BMPs) for the years 2001, 2002, 2003 and 2004. These BMPs are functionally equivalent to the Demand Management Measures in Water Code Section 10631. The reports detail the District's efforts to meet the requirements of the Plan, and implement the 14 urban water conservation BMP practices that are intended to reduce long-term urban demands.

2.8 EVALUATION OF DEMAND MANAGEMENT MEASURES NOT IMPLEMENTED

Water conservation is a critical part of the District's 2005 UWMP and its long-term strategy for meeting the water needs of the District. The goals of the District's water conservation program are to:

- reduce the demand for more expensive, imported water
- demonstrate continued commitment to the Best Management Practices
- ensure a reliable water supply

The District is a signatory to the Memorandum of Understanding (MOU) Regarding Urban Water Conservation in California, which created the California Urban Water Conservation Council (CUWCC) in 1991. As a signatory, the District is required to submit biannual reports that detail the implementation of current water conservation practices. The District voluntarily agreed to implement the fourteen water conservation BMPs beginning in 1992. The District submits its annual report to the CUWCC every two years.

Water conservation programs are developed and conducted on the premise that water conservation increases the water supply by reducing the demand on available supply, which is vital to the optimal operation of the District. Education is an important component to all of these programs. As a member agency of the Water Authority, the District also participates in many water conservation programs designed and conducted as a shared-cost participation program among the member agencies, the Water Authority and Metropolitan.

All the District's BMP's are either in compliance, or are a work-in-progress. In addition, District staff partners with the Water Authority to promote new technologies and incentives for new technologies. The District remains on

schedule to expand its current recycled water system, as illustrated in the figures in Table 4, and continues to actively promote water conservation programs to its customers. The District promotes its new and existing conservation programs through expanded outreach efforts, bill inserts, articles in the District's *Pipeline* newsletter, direct mailings to District customers, and through the Water Authority's marketing efforts. The District is committed to water conservation and recycling as reflected in its Strategic Plan, and expects to spend more effort and resources in the future to promote programs that improve landscape water efficiency.

2.9 Planned Water Supply Projects and Programs

Water Code section §10631

(h) Include a description of all water supply projects and water supply programs that may be undertaken by the urban water supplier to meet the total projected water use as established pursuant to subdivision (a) of Section 10635. The urban water supplier shall include a detailed description of expected future projects and programs, other than the demand management programs identified pursuant to paragraph (1) of subdivision (f), that the urban water supplier may implement to increase the amount of the water supply available to the urban water supplier in average, single-dry and multiple-dry water years. The description shall identify specific projects and include a description of the increase in water supply that is expected to be available from each project. The description shall include an estimate with regard to the implementation timeline for each project or program.

As a member of wholesaler Water Authority, the District actively participates in Water Authority's ongoing water supply and reliability discussions, projects and programs. The Water Authority is currently emphasizing diversification of its water supplies to reduce its reliance on the larger wholesaler, Metropolitan. Diversification projects include an ocean desalination project, Imperial Irrigation District water transfer, and the lining of the All American Canal. Detailed information on these projects can be found in both Water Authority's and Metropolitan's 2005 Plans.

Future Water Supply Project - Santa Margarita River project

A potential water supply project for FPUD is the Santa Margarita River conjunctive-use project. Engineering, economic and environmental feasibility studies for the project are underway and are targeted for completion in summer 2006. Federal funding grants in the amount of $700,000, for the purpose conducting the feasibility studies, have been provided to the Bureau of Reclamation. However, if this project does not come to fruition, FPUD will continue to rely on the SDCWA for virtually 100% of its water supply.

The Santa Margarita River conjunctive-use project involves a plan with Camp Pendleton as a partner in developing the river as a local source of water. If developed, the river could meet about 40% of the District's future needs and

100% of Camp Pendleton's needs. The project would mimic nature by taking surface water from the river during times of plenty, allowing it to percolate through the soil, then storing it in an underground water basin on Camp Pendleton for later use in drier times. The project would minimize the need for the District to purchase imported water from SDCWA, and would provide a reliable water supply, enabling the District to become more self-sustaining. Current projections are that FPUD would be able to divert and store approximately 6,000 AF/Y for District use, and construction would be started in fiscal year 2007-2008.

2.10 Development of Desalinated Water

FPUD actively participates in the decisions of wholesaler water supplier Water Authority, since FPUD is one of its 23 member agencies. Water Authority has identified seawater desalination as a potential supply and is moving forward with development of a 50-million gallon per day seawater desalination facility. Water Authority has forecasted that the project will be online by 2010. More information on this project can be found in the both Water Authority's and Metropolitan's 2005 Plans.

2.11 Current or Projected Supply Includes Wholesale Water

Water Code Section §10631

(k) Urban water suppliers that rely upon a wholesale agency for a source of water shall provide the wholesale agency with water-use projections from that agency for that source of water in five-year increments to 20 years or as far as data is available. The wholesale agency shall provide information to the urban water supplier for inclusion in the urban water supplier's plan that identifies and quantifies, to the extent practicable, the existing and planned sources of water as required by subdivision (b), available from the wholesale agency to the urban water supplier over the same five-year increments, and during various water-year types in accordance with subdivision (c). An urban water supplier may rely upon water supply information provided by the wholesale agency in fulfilling the plan informational requirements of subdivisions (b) and (c).

Agency Demand Projections Provided to Wholesale Suppliers – AF/Y (Table 10)

Wholesaler	2010	2015	2020	2025	2030
San Diego County Water Authority	16,149	15,773	15,625	15,189	15,241

WHOLESALER IDENTIFIED & QUANTIFIED, AND PLANNED SOURCES OF WATER AVAILABLE TO OUR DISTRICT – AF/Y (TABLE 11)

Wholesaler or water supply sources	2010	2015	2020	2025	2030
San Diego County Water Authority	16,149	15,773	15,625	15,189	15,241
Groundwater supplier: Santa Margarita River	6,000	6,000	6,000	6,000	6,000
Groundwater supplier: local wells in Fallbrook	100	100	100	100	100
Surface diversions: rainfall into Lake Skinner	1,000	1,000	1,000	1,000	1,000
Recycled water	480	530	590	600	600

If the Santa Margarita River project does not come to fruition, FPUD will continue to rely on the Water Authority for virtually 100% of its water supply. More information on this project can be found in the earlier sections, 2.3 and 2.4

More information on the Water Authority's projects and water supply can be found in the Water Authority's 2005 Urban Water Management Plan.

Section 3 - Determination of DMM Implementation

Determination of DMM Implementation

Attached in Appendix B are the California Urban Water Conservation Council reports documenting the District's Best Management Practices (BMPs) for the years 2001, 2002, 2003 and 2004. These BMPs are functionally equivalent to the Demand Management Measures in Water Code Section 10631. The reports detail the District's efforts to meet the requirements of the Plan, and implement the 14 urban water conservation BMP practices that are intended to reduce long-term urban demands.

Section 4 – Water Shortage Contingency Plan

4.1 Stages of Action

Water Code Section §10632 (a)

The plan shall provide an urban water shortage contingency analysis that includes each of the following elements that are within the authority of the urban water supplier.

(a) Stages of action to be undertaken by the urban water supplier in response to water supply shortages, including up to a 50 percent reduction in water supply, and an outline of specific water supply conditions which are applicable to each stage.

In the event of declared water shortages, the District's Water Conservation Ordinance will be implemented. A copy is included in Appendix A. This plan includes both voluntary and mandatory rationing during water supply shortages to help control consumption. It identifies all six steps in the plan, and identifies the stages of action FPUD would take in the event of a declared shortage, and illustrates the specific water supply conditions that trigger activation of each stage of action. It should also be noted that FPUD's water wholesaler, Water Authority, reports regional information and methodology in their 2005 Urban Water Management Plan, and that it is developing a comprehensive Drought Management Plan in the event the region faces supply shortages. The initial draft is expected to go before the Water Authority board in February 2006. More information can also be found in Metropolitan's 2005 Urban Water Management Plan.

As soon as a particular condition is declared to exist, the water conservation measures provided for that condition would apply to all FPUD water service until a different condition is declared. The chart below is a summary of the requirements of the six stages of actions that would be taken by FPUD in the event of a declared shortage. The complete text is in Appendix A.

Water Supply Shortage Stages and Conditions Summary (Table 12)

Stage No.	Water Supply Conditions	% Shortage
1	During "Water Watch," customers are asked to use water wisely and ensure conservation measures so no water is wasted.	
2	Stage 2 applies during periods when the district determines that it may not be able to meet all the water demands of its customers, either now or in the foreseeable future, and that usage should be reduced.	10% shortage
3	Stage 3 applies during periods when the district determines that it will not be able to meet all the water demands of its customers now or in the foreseeable future and a 15% reduction in water use is required to meet all minimal needs of customers.	15% shortage
4	Stage 4 applies during periods when the district determines that it will not be able to meet all the water demands of its customers now or in the foreseeable future and a 20% reduction in water use is required to meet all minimal needs of customers.	20% shortage
5	Stage 5 applies during periods when the district determines that it will not be able to meet all the water demands of its customers now or in the foreseeable future and a 30% reduction in water use is required to meet all minimal needs of customers.	30% shortage
6	Stage 6 applies during periods of a water shortage emergency and a 50% reduction in water use is required to meet all minimal needs of customers.	50% shortage

4.2 ESTIMATE OF MINIMUM SUPPLY FOR THE NEXT THREE YEARS

The following chart in Table 12 quantifies the minimum water supply available during the next three years (2006 – 2008), based on the driest three-year historic sequence for FPUD's water supply. Recycled water is considered to be drought-proof.

Three-year estimated minimum water supply – AF/Y (Table 13)

Source	Year 1	Year 2	Year 3	Normal
San Diego County Water Authority (as noted in their Plan)	15,000	15,000	15,000	15,000
Surface diversions into Lake Skinner	0	0	0	1,000
Groundwater: local wells in Fallbrook	0	0	0	100
Recycled water	480	480	480	480
Total	15,480	15,480	15,480	16,580

4.3 CATASTROPHIC SUPPLY INTERRUPTION PLAN

WATER CODE SECTION §10632 (c)
(c) Actions to be undertaken by the urban water supplier to prepare for, and implement during a catastrophic interruption of water supplies including, but not limited to, a regional power outage, an earthquake, or other disaster.

In the event of short-term or prolonged water shortage, FPUD has several safeguards in place. FPUD's Red Mountain Reservoir holds 135 AF of treated water and the district can tap into it in emergencies. Just as recently as summer 2005 when the Skinner Filtration plant, which is owned by MWD and serves treated water to the Water Authority as well as Riverside County, suffered a significant operational failure and was only operating at half capacity, FPUD was able to volunteer to take a 50% cut in potable water deliveries. FPUD customers didn't notice any reduced supply or water pressure changes, and the voluntary cutback was helpful to the region.

In the event of a power failure, FPUD also has emergency portable generators that can be used at Red Mountain Reservoir and several other facilities that would allow the district to pump potable water, at a reduced capacity, to DeLuz and Toyon Heights, the two regions of the district's service area that are not served by the district's gravity-fed water distribution lines.

FPUD also entered into an exchange agreement with Rainbow Municipal Water District in 1986. Both agencies own and operate water pipeline systems connected to the Water Authority aqueduct and share a common boundary. In some areas of this common boundary, both agencies determined it may be more economical to serve property located in one district from the pipeline system of the other district. Two interconnections were constructed linking both agencies' systems for this exchange purpose, and for the purpose of emergency supply in the event of leaks or maintenance. Rancho California Water District is the only other adjacent water agency, but no opportunity for transfers or emergency connections exist.

As a member agency of wholesale water supplier Water Authority, the District actively participates in Water Authority's ongoing reliability discussions. Due to the reduced allocation the Water Authority received from Metropolitan during the drought 1987-1992, the Water Authority is focusing on diversifying its sources of water, rather than relying for the majority of its water from wholesale giant Metropolitan. The Water Authority entered into a transfer agreement with the Imperial Irrigation District, which will provide up to 200,000 AF by 2030. Water Authority has also identified seawater desalination as a potential supply and is moving forward with development of a 50-million gallon per day seawater desalination facility. More information on these projects and Water Authority's potential water transfers can be found in the Water Authority's 2005 Urban Water Management Plan, and in Metropolitan's Plan.

Catastrophic events such as earthquakes or regional power outages can impact water supply. As a member agency of the Water Authority, the District is a participant in the Water Authority's Emergency Response Plan (ERP) and Emergency Storage Project (ESP). The ERP provides information to allow staff to respond to an emergency that impedes the Water Authority's ability to provide reliable water service to the District. The ERP includes: policies, Emergency Operations Center activation and deactivation guidelines, Multi-agency and multi-jurisdictional coordination, emergency staff and organization, Mutual Aid agreements and pre-emergency planning and emergency operations procedures.

The ESP is a system of reservoirs, pipelines and other facilities that will work together to store and move water around the county in the event of a natural disaster. The entire project has a completion target date of 2012. When completed, the ESP will provide 90,100 acre-feet of storage water for emergency purposes in the Water Authority's service area. This amount is anticipated to meet the Water Authority's needs through at least 2030.

Aqueduct Off – No water being Delivered

An earthquake or other cause might damage the aqueduct, requiring it to be shut down for an extended period of time.

1. Action to be taken: Notify management personnel as quickly as possible. Consider activation of Emergency Operations Center.

2. Determine the flow to the District's system and the amount of water in storage. Operate valves to maintain the water in the highest reservoirs wherever possible. Use the water from the low reservoirs first.

3. Make an attempt to determine how long the aqueduct will be out of service and how long the District's water must last. Make plans to terminate agricultural and other non-essential uses, as necessary.

4. Notify the public as to what condition and stage the District is currently in, and ration water, if necessary.

Earthquake

1. Consider activation of Emergency Operations Center. Have an alternative site in mind in case first choice of site is destroyed. Inventory existing equipment.

2. Notify customers that supply of water may be limited, especially if aqueduct is down, using telephone, CB radios, Ham Radio Operators (RACES), house-to-house notification, loudspeakers, radio, TV, etc.

3. Prepare a priority list for making repairs. Make sure there are ample copies of valve records, fire hydrant valves and regulator vaults available to make necessary shutdowns and turnoffs and in case assistance is required by other Districts or agencies, such as fire and sheriff's departments.

4. Check on auxiliary power available at treatment plants, pump and lift stations, and chlorination stations. Reroute water where necessary. Isolate broken main sections and repair as possible. Provide temporary lines if necessary.

5. Plan emergency usage and estimate water demand, quality and quantity, during and following earthquakes, taking into account the extent of damage and capability of system. Determine priorities for allocation of water.

Prior arrangements for earthquake preparedness:

1. Set up emergency assistance procedures with local suppliers and contractors for the to supply equipment and/or supplies to the District. Devise a plan to obtain extra help, food, housing, etc. for District personnel if necessary.

2. Set up training programs, classroom lectures, maps, etc. The better and more complete the training, the less confusion and uncertainty when disaster strikes. Devise a plan, which clearly outlines who is to do what and when.

3. Initiate mutual-aid agreements and other arrangements with nearby agencies and districts.

4. Include in future design of tanks, pipelines, vaults, etc. earthquake-resistant materials and design criteria.

Major Water Outage

1. Notify key personnel (system operator and superintendent). Consider activation of Emergency Operations Center.

2. Divert water wherever possible to prevent property damage.

3. Isolate blowout (break) and determine extent of damage. Make provisions for fire protection. Contact the appropriate fire department.

4. Contact local contractors for help, if necessary.

5. Notify customers in affected areas about water outage and turn off meters, if necessary.

6. Divert water to other pipelines and loops, adjust valves to minimize water outage.

7. Repair blowout, flush lines and disinfect them.

8. Turn on meters and return system to normal operation.

No water in system

1. Notify management personnel as to the known areas of lack of water. Consider activation of Emergency Operations Center.

2. Providing the District has water in its system and is receiving water from the aqueduct, proceed to ascertain the reasons for no water being delivered. Repair or correct the cause of no water deliveries as soon as feasible.

3. If the aqueduct is off and the District's system is in operation, contact the SDCWA to identify the problem and determine when the system will be repaired. If necessary, notify the public of minimum water-use requirements. Make provisions for fire protection water, if possible.

Weather-related damage – Storms/High Winds/Tornado/Hurricanes

1. Notify management personnel of extent of damage insofar as it is possible to determine. Consider activation of Emergency Operations Center.

2. Check the District's system to determine the extent of damage. Be alert to the fact that high winds will probably be accompanied by flooding, which will cause further problems. Watch for downed trees and power lines that may serve the District's facilities.

3. Assist the inhabitants and other agencies wherever possible and as necessary. Protect District employees and crews from potential injuries.

4.4 Prohibitions, Penalties and Consumption Reduction Methods

The following prohibitions apply to use of potable water and do not apply to reclaimed water or well water use.

Mandatory Prohibitions (Table 13)

Prohibitions	Stage when Prohibition becomes mandatory
Permitting excessive water to flow off property	1
Excessive irrigation of agricultural or landscape runoff	1
Failure to repair observable leak	1
Washing down driveways or paved areas, except when necessary in event of fire	1
Leaving a hose running when washing vehicle	1
Landscape watering between 9am – 4pm, except for agricultural users and nurseries	2
Construction meter watering may only be used 7am – 5pm	2
Vehicle washing except with a handheld hose equipped with a positive shut-off nozzle	2
Overfilling of pools, spas, fountain or lakes	2
Irrigation of parks, schools or recreational fields between 9am – 4pm	2
Use of fire hydrants except for fire fighting and related activities	2
Construction operations for new landscaping must adhere to the allowed watering time, 7 am – 5 pm	2
Restaurants serving water automatically; it must be on request	2
Operation of ornamental fountains that do not recycle or recirculate water	2
Annexations of land outside FPUD service area will not be considered	2
Failure to curtail water use by 15% for ag users, commercial nurseries and all other commercial customers	3
Draining and refilling of pools, spas, ponds and artificial lakes	3
Operation of any ornamental fountain or similar structure	3
No new construction meters will be issued	3
Irrigation of lawn, turf, ornamental landscaping must have a 20% overall reduction for residential, commercial, schools, parks and similar properties	4
Failure to curtail water use by 20% for ag users, commercial nurseries and all other commercial customers	4
Irrigation of lawn, turf, ornamental landscaping must have a 30% overall reduction for residential, commercial, schools, parks and similar properties	5
Failure to curtail water use by 30% for ag users, commercial nurseries, commercial car washes, and all other commercial customers	5
Water becomes allocated annually and any usage above the user's cumulative allotment will be billed at the "above target" rates	6

The following consumption reduction methods apply to use of potable water and do not apply to reclaimed water or well water use.

Consumption Reduction Methods (Table 14)

Stage	Consumption Reduction Method	Projected reduction (%)
Stage 1	Voluntary Compliance – Water Watch – customers are asked to use water wisely and ensure conservation measures so water is not wasted through practices including excessive irrigation, excessive runoff, or failure to repair leaks	
Stage 2	Enforcement Required – including limiting hours during which lawn watering and irrigation can occur, along with schools, parks and construction meter water projects; prohibits overfilling of pools, hoses running during car washes, restaurants from automatically serving water; no annexations would be considered	10%
Stage 3	Enforcement Required – Extends Stage 2 to include all nurseries, agricultural and commercial users to curtail water use by 15%; draining & refilling of pools and fountains prohibited; auto washing is encouraged to be done at facility that recycles water; no new construction meters will be issued	15%
Stage 4	Enforcement Required – irrigation is permitted with 20% reduction; nurseries, agricultural users and commercial car washes must all curtail water use by 20%; special conservation rates apply	20%
Stage 5	Enforcement Required – irrigation of lawn & landscape shall be reduced to minimal amounts sufficient to keep plants alive and maintain 30% reduction; nurseries, agricultural users and commercial car washes must all curtail water use by 30%; special conservation rates apply	30%
Stage 6	Enforcement Required – an Annual Allocation Management Plan will begin April 1 allowing a 30-day grace period for accrued credits from the previous year to be used; water consumed during each billing period will be compared to the assigned target and any use below will be accumulated and carried forward	50%

The table below lists penalties and charges for excessive potable water use.

Penalties and Charges (Table 15)

Penalty or Charge	Stage when penalty takes effect
Letter of warning	Stage 1, first violation
$100 surcharge	Stage 1, second violation in 12-month period
$300 surcharge	Stage 1, subsequent violations in 12-month period
Letter of warning	Stage 2, first violation
$200 surcharge	Stage 2, second violation in 12-month period
$400 surcharge, and board will conduct a hearing and may require a low-flow restrictor or discontinue service	Stage 2, subsequent violations in 12-month period
Letter of warning	Stage 3, first violation
$500 surcharge	Stage 3, second violation in 12-month period
$750 surcharge, and board will conduct a hearing and may require a low-flow restrictor or discontinue service	Stage 3, subsequent violations in 12-month period
Letter of warning	Stages 4, 5 and 6, first violation
$750 surcharge	Stages 4, 5 and 6, second violation in 12-month period
$1,000 surcharge, and board will conduct a hearing and may require a low-flow restrictor or discontinue service	Stage 3, subsequent violations in 12-month period

4.5 Analysis of Revenue Impacts of Reduced Sales During Shortages

If FPUD were to encounter an extended water shortage, the result would be a reduced amount of water sold by FPUD to its customers. Since water bills are based on water consumption, the revenue received by the District would also be reduced. The most severe restrictions are intended to reduce consumption by 50%. The impacts of such a reduction on the District's revenue are shown in Table 15.

Actions and Conditions that Impact Revenues (Table 16)

Type	Anticipated Revenue Reduction
Reduced water sales (50% reduction)	$5 million, or 36% of revenues

A 50% reduction in consumption would also reduce the District's expenditures. The District's costs for acquiring and delivering the water to its customers would be reduced, as shown in Table 16. Some of the District's costs might be increased, such as additional staff time for monitoring water use or enforcing conservation policies. However, these efforts would be achieved by temporarily re-directing staff from other tasks. These changes in operation, therefore, would

not be expected to cause a significant increase in the District's total expenditures.

ACTIONS AND CONDITIONS THAT IMPACT EXPENDITURES (TABLE 17)

Category	Anticipated Cost Reduction
Reduction in water purchase from Water Authority (50% reduction)	$4.5 million, or 20% of expenditures

The tables above show a potential shortfall of $0.5 million annually if consumption were reduced 50%. If the reduction were due to a short-term situation, the District could absorb the entire shortfall by drawing on its general fund reserves, which are maintained at a minimum of $6 million. After conditions returned to normal, the District would replenish its reserves. The reserve fund could be restored to its full level by increasing rates 1% and directing the additional revenue to reserves for five years. But depending on the duration of the shortage, this rate increase might not be necessary because FPUD's service charges have been calculated to recover up to 80% of the District's fixed costs. This built-in calculation is something FPUD takes great pride in as it would help the District, and therefore its customers, to have a steady stream of revenue when water purchases would fluctuate, or restrictions on water purchases from our wholesaler, the Water Authority, might be imposed.

The District's response would be more complex if the 50% reduction in consumption was expected to be permanent. The District would need to raise the average water bill by approximately 20% to balance its budget. One way this rate increase could be accommodated would be to phase increases of 5% per year over four years. Two factors would mitigate the need for more immediate increases. First, the District's general fund reserves could be used to temporarily fill the gap between expenditures and revenues. Second, the $0.5 million shortfall mentioned above does not include increased costs of purchased water that would go to the Water Authority as they raise their rates, assuming the reduction was occurring across the region. The Water Authority would likely spread their rate increases over several years, allowing the District to do the same.

A summary of the District's anticipated response is shown in Table 17.

PROPOSED MEASURES TO OVERCOME REVENUE IMPACTS (TABLE 18)

Measure	Summary of Effects
Rate adjustment	5% annual increase for four years; 20% increase in average water bill
Development of reserves	Reserves are currently maintained at a minimum of $6 million. With the rate adjustment, the District would replenish any draw-down of reserves that occurred.

A permanent 50% reduction in water consumption might allow the District to achieve cost savings in some areas. The need for additional pumping, storage, and pipeline capacity might be reduced. The District might not require as much

equipment or staff to maintain its infrastructure. However, the District might see higher expenditures in other areas, such as water use monitoring or answering questions from customers. Overall, these changes are not expected to have a significant impact on District expenditures.

4.6 DRAFT ORDINANCE AND USE MONITORING PROCEDURE

WATER CODE SECTION §10632 (h & i)
(h) A draft water shortage contingency resolution or ordinance.
(i) A mechanism for determining actual reductions in water use, pursuant to the urban water shortage contingency analysis.

A copy of the district's water shortage contingency ordinance is attached in Appendix A.

FPUD would use a variety of mechanisms to determine customers' actual reduction of water usage during a water shortage. The main mechanism would be more frequent reading of customer meters. In 2005, the District is in its third year of an accelerated program to replace all meters in the district service area with new meters that incorporate a radio-read feature. The remote read meter program replaces the old process whereby a meter reader had to get out of his vehicle and manually read each customer's meter, then record that reading and report it back to the office for billing purposes. With the newer remote meters, the meter reader is able to stay in his vehicle and read and record customer meters. This increases accuracy of meter readings and at the same time, decreases the manhours needed to complete the task. FPUD would increase the frequency of customer meter readings. The District also has an annual allocation program that could be put in place whereby prior consumption history would be tracked and compared.

FPUD would also monitor daily production and distribution records, and waste water treatment records. The former is already done daily through aqueduct connections and, combined with more frequent meter readings, would be the fastest methods of monitoring usage more often.

The table below lists mechanisms for monitoring water use.

WATER USE MONITORING MECHANISMS (TABLE 19)

Mechanisms for determining actual reductions	Type and quality of data expected
Daily production and distribution records	System-wide changes in demand
Waste water treatment records	System-wide changes showing increased water use
Increased meter reading	Month-to-month changes in water use, and year-to-year changes for key customers
Annual allocation program	Month-to-month changes in water use, and year-to-year changes for key customers

Section 5 – Recycled Water

WATER CODE SECTION – §10633

The plan shall provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier. The preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area.

5.1 COORDINATION

FPUD provides water and sewer services for the rural town of Fallbrook. Sewer service is provided for a population of approximately 22,500 in an unincorporated area of about 6.6 square miles. The remainder customers in the District's service area are on a septic system. Currently the wastewater treatment plant treats an average of 1.8 million gallons per day (MGD) and has a rated capacity of 2.7 MGD.

PARTICIPATING AGENCIES (TABLE 20)

Participating agencies	Role in plan development
FPUD	Owns and operates treatment plant

5.2 WASTEWATER QUANTITY, QUALITY AND CURRENT USES

The District's collection system consists of 65 miles of sewer lines, 5 pumping stations and an 18-mile land-line to the ocean outfall in Oceanside. The wastewater treatment plant currently treats an average of 1.8 MGD and has a rated potential to treat 2.7 MGD. The treatment plant treats all wastewater to the tertiary level. Unit processes include preliminary treatment, grit removal, primary treatment, secondary treatment by activated sludge process, tertiary treatment and disinfection.

WASTEWATER COLLECTED AND TREATED AF/Y (TABLE 21)

	2000	2005	2010	2015	2020	2025	2030
Wastewater collected & treated in service area	2208	2177	2503	2879	3311	3808	4379
Quantity that meets recycled water standard	2208	2177	2503	2879	3311	3808	4379

Treated effluent is used for agriculture and irrigation purposes and the remainder is discharged to the ocean via our 18-mile ocean outfall. We have 24 recycled water meters over 16 recycled water user sites. Seven of the sites use recycled water for agriculture and 9 sites use recycled water for irrigation.

DISPOSAL OF WASTEWATER AF/Y (TABLE 22)

Method of disposal	Treatment level	2005	2010	2015	2020	2025	2030
Sold recycled water	Tertiary effluent	317	480	530	590	600	600
Discharge to ocean outfall	Tertiary effluent	1860	2023	2349	2721	3208	3779

Approximately 49% of our recycled water is used for agricultural purposes and 51% is used for irrigation. We have recycled an average of 127 million gallons (MG), or 389 AF per year, over the past five years.

RECYCLED WATER USES – ACTUAL AF/Y (TABLE 23A)

Type of Use	Treatment level	2005 AF/Y
Agricultural	Tertiary effluent	155
Irrigation – landscape	Tertiary effluent	162
Total		317

5.3 POTENTIAL AND PROJECTED USES, OPTIMIZATION PLAN WITH INCENTIVES

Currently, FPUD recycles an average of 14.6% of our total plant flow. We estimate wastewater flow increases at 3% per year.

RECYCLED WATER USES – POTENTIAL AF/Y (TABLE 23B)

Type of Use	Treatment level	2010	2015	2020	2025	2030
Agricultural	Tertiary effluent	235	259	289	294	294
Irrigation – landscape	Tertiary effluent	245	271	301	306	306
Total		480	530	590	600	600

The present recycled water distribution system and outfall line makes recycling 100% of our flow technically and economically feasible. However, there are no current plans to increase recycled water sales because the amount that is currently sold is sufficient for irrigating the agriculture and landscape in the area of the District that is connected to the existing recycled water distribution system lines. Since most of Fallbrook is already developed, it would not be cost-effective to tear up existing streets and lay more recycled water distribution line in other parts of the District's service area. In addition, the lines flow by gravity and the recycled water treatment plant is downstream of most other parts of Fallbrook, which would require the need for pumping recycled water to those locations and costly subsequent pumping costs would apply.

PROJECTED FUTURE USE OF RECYCLED WATER IN SERVICE AREA – AF/Y (TABLE 24)

Type of Use	2010	2015	2020	2025	2030
Agricultural	235	259	289	294	294
Irrigation – landscape	245	271	301	306	306
Total	480	530	590	600	600

Below is a comparison of figures from the District's 2000 Urban Water Management Plan and projections from this 2005 Plan.

RECYCLED WATER USES – 2000 PROJECTIONS COMPARED WITH 2005 - ACTUAL AF/Y (TABLE 25)

Type of Use	2000 Projection for 2005	2005 Actual Use
Agricultural	5.47	155
Irrigation – landscape	1.28	162
Total	6.75	317

PROPOSED ACTIONS TO ENCOURAGE USE OF RECYCLED WATER

FPUD has made recycled water available and its use is mandatory where available and cost-effective. The District made the commitment and commenced its wastewater recycling efforts in 1994. A major component of the commitment to recycle was to enact an ordinance that requires recycled water and other non-potable water be used within the recycled water system's jurisdiction, and where it is technically and financially feasible. The use of potable water for irrigation or other non-potable uses is prohibited where recycled water is suitable and available within the District's service lines.

The District has also established financial incentives for the use of recycled water within its service area in the form of a 15% rate discount, as compared to the cost of potable water. The District received a State loan for the construction of the chlorine contact chamber and the recycled water distribution system. Recycled water site supervisors have taken advantage of training offered by the SDCWA. Public awareness programs are undertaken in the form of District newsletters, Earth Day presentations and school education programs.

FPUD's Recycled Water Ordinance Article 27 details the requirements for the use of recycled water whenever feasible. Article 27 is attached in Appendix B.

Section 6 – Water Quality Impacts on Reliability

WATER CODE SECTION – §10634
The plan shall include information, to the extent practicable, relating to the quality of existing sources of water available to the supplier over the same five-year increments as described in subdivision (a) of Section 10631, and the manner in which water quality affects water management strategies and supply reliability.

Two water wholesalers, the Water Authority and Metropolitan, provide virtually all FPUD's potable water supply. FPUD gets its water from the Water Authority, who gets its water from Metropolitan, and Metropolitan gets its water from two sources: the Colorado River and the State Water Project. However, the Water Authority is focusing on diversifying its sources of water, rather than relying for the majority of its water from wholesaler Metropolitan. The Water Authority entered into a transfer agreement with the Imperial Irrigation District, and has also identified seawater desalination from water in the Pacific Ocean as a potential supply and is moving forward with development of a 50-million gallon per day seawater desalination facility.

More information on these projects can be found in the Water Authority's 2005 Urban Water Management Plan, and in Metropolitan's Plan.

Both of these sources, the Colorado River and the State Water Project, have unique water quality issues. Much of this water quality discussion is based on information compiled by the Water Authority.

Colorado River

Two areas of concern with the quality of Colorado River water are perchlorate and salinity as measured by total dissolved solids (TDS). Ammonium perchlorate is used as the main component in solid rocket propellant, and it can also be found in some types of munitions and fireworks. The primary human health concern related to perchlorate is its effects on the thyroid. Perchlorate has been detected at low levels in Metropolitan's Colorado River water supply.

In 2002, Metropolitan adopted a Perchlorate Action Plan. Metropolitan is actively monitoring perchlorate levels and is working to prevent the introduction of perchlorate into the Colorado River system. Currently, it appears the perchlorate originates from a contaminated area in Nevada that leads to the Las Vegas Wash and eventually the Colorado River.

The salinity in Colorado River water is due to naturally occurring saline sediments in the basin and to high-salinity return flows from agriculture. The range of TDS in the Colorado River is 525 milligrams per liter (mg/L) during high flows and 900 mg/L during drought conditions, averaging around 650 mg/L during normal water years. High TDS in water supplies causes high TDS at

wastewater plants and can limit the eventual use of recycled water produced by the individual plant. Additionally, high levels of TDS can damage water delivery systems and home appliances.

Metropolitan has adopted a Salinity Management Plan to deal with the TDS issues. One part of this plan is to blend Colorado River water with other sources to achieve a blended TDS of less than 500 mg/L. Metropolitan is also involved in the Colorado River Basin Salinity Control Forum, which seeks to intercept and control sources of salt in the basin.

State Water Project

Water supplies from the State Water Project typically have significantly lower TDS levels than the Colorado River, averaging 250 mg/L. Because of this lower salinity, Metropolitan blends State Water Project water with higher-salinity Colorado River water to reduce the overall salinity levels of delivered water. However, both the supply and the TDS levels of State Water Project water can vary significantly in response to hydrologic conditions in the Sacramento-San Joaquin watersheds.

Water from the State Water Project also has higher levels of bromide and total organic carbon (TOC) than Colorado River water. These constituents can lead to the formation of disinfection byproducts during treatment. The formation of disinfection byproducts can be controlled through appropriate technology selection and careful monitoring of water quality in the treatment process and in the distribution system. The California Urban Water Agencies retained an expert panel that identified target concentrations of bromide (50 parts per billion) and TOC (3 parts per million) in raw source water. These goals have been adopted as targets for the State Water Project intakes in the Sacramento-San Joaquin Delta.

Local Surface Water

Under its agreements with neighboring agencies, it is possible for water from local watersheds to be delivered to the District. In the past, the quality of local water sources has been considered good. The most significant reported problem is algae blooms, which can lead to taste and odor issues.

The Water Authority, the City of San Diego, and the County of San Diego have formed a Regional Water Management Group to develop an Integrated Regional Water Management Plan (IRWMP) for the San Diego region. The IRWMP will include measures to protect and enhance the quality of local water sources. The Water Authority is also working with its member agencies to improve watershed awareness and management.

Desalinated water from the Pacific Ocean

The proposed regional seawater desalination project at the Encina Power Station in Carlsbad will draw water from the Pacific Ocean. The TDS of the Pacific Ocean in San Diego County averages approximately 34,000 mg/L. The water will undergo a pretreatment process to remove suspended solids and organic material. The desalination facility will then use a reverse osmosis membrane treatment process to reduce the TDS to less than 350 mg/L. The product water will be post-treated to improve its aesthetic quality and to help prevent corrosion in the distribution system. A residual disinfectant will also be added to the water. The product water will meet all applicable drinking water regulations. The brine discharge will be returned to the ocean through the existing outfall that is used for cooling water at the power plant. This dilution is expected to minimize any adverse impacts on ocean water quality or the marine environment.

Groundwater

FPUD uses very little groundwater in its blend, only about 100 AF per year. Two possible water quality issues with groundwater are contamination with Methyl Tertiary Butyl Ether (MTBE) and high salinity levels. Until recently, MTBE was used as an additive to gasoline in order to reduce air pollution. MTBE can leak from underground storage tanks and make its way to groundwater aquifers. MTBE is very soluble in water and has a low affinity for soil, making treatment of MTBE more difficult than treatment of other gasoline components. Because of these issues, California has phased out the use of MTBE as a gasoline additive. As leaking underground storage tanks are replaced, the risk of MTBE contamination may be reduced.

The groundwater used by FPUD has been tested regularly and has shown no MTBE in the water. The treated process proposed for the Santa Margarita River project will remove any MTBE that might be found.

Increased salinity in groundwater can result from seawater intrusion or return flows from irrigation that are high in salinity. Water quality officials may restrict the salinity level of water used for irrigation to protect groundwater supplies.

Recycled Water

The primary water quality issue for use of recycled water is salinity, as measured by TDS. Conventional wastewater treatment processes are not designed to remove salinity. Metropolitan's goal for potable water delivery is a TDS level of 500 mg/L, and residential use of water can add 200 to 300 mg/L of TDS. TDS concentrations over 1,000 mg/L in recycled water can lead to restrictions on use in irrigation or other applications.

Recycled water from the District's has consistently had less than 1,000 mg/L TDS.

Section 7 –Water Service Reliability

WATER CODE SECTION – §10635

(a) Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry and multiple dry water years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with the total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and multiple dry water years. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from state, regional or local agency population projections within the service area of the urban water supplier.

(b) The urban water supplier shall provide that portion of its urban water management plan prepared pursuant to this article to any city or county within which it provides water supplies no later than 60 days after the submission of its urban water management plan.

(c) Nothing in this article is intended to create a right or entitlement to water service or any specific level of water service.

(d) Nothing in this article is intended to change existing law concerning an urban water supplier's obligation to provide water service to its existing customers or to any potential future customers.

7.1 PROJECTED NORMAL WATER YEAR SUPPLY AND DEMAND

Virtually all FPUD's potable water supply is expected to continue to be supplied by the Water Authority. More information on the Water Authority's projections can be found in the Water Authority's 2005 Urban Water Management Plan.

The following three sources will provide additional supply: local wells in Fallbrook, surface diversions from the Santa Margarita River into the Lake Skinner Filtration Plant, and recycled water produced at FPUD's treatment plant. A potential source of water is the Santa Margarita River. This potential supply is discussed thoroughly in Section 2 of this Plan. The table below illustrates the projected supply and demand under normal weather conditions.